

Mobile Travel Guide for Budget Travelers

by

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CERTIFICATION OF APPROVAL

MOBILE TRAVEL GUIDE FOR BUDGET TRAVELERS

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BACHELOR OF TECHNOLOGY (Hons)
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CERTIFICATION OF ORIGINALITY

This is to certify that I am responsible for the work submitted in this project, that the original work is my own except as specified in the references and acknowledgements, and that the original work contained herein have not been undertaken or done by unspecified sources or persons.



NOOR SUKAINAH BINTI ADZMI

ABSTRACT

The rapid advancement of information and communication technologies has been shaping up a new value chain for tourism. Some travel organizers are getting less profit from the standard package tours because of the shift in the structure of tourism. This is because, nowadays travelers or tourists especially backpackers are no longer depending on the travel organizers. People nowadays have no more time to plan their trip and go for a package for a few days time. Thus, whenever these busy people have a little leisure time for a vacation, they will just pack their things into the backpacker, and go for an unplanned vacation. Before going to a trip, they will first find some information via tourism-related website so that they will have an idea on where to go. Once they have the idea, they just go for that trip without knowing they might be facing some kind of problem such as lack of money, getting lost, having no idea on what are the tourists attraction at a new place which can cause them to have a difficult time during the trip occurred. This is because tourism websites are not very informative to meet the travelers' expectations and needs. This research aims to design and develop a Mobile Travel Guide for Budget Travelers to assist the travelers especially for the backpackers in information seeking and searching through mobile phone. The system will help travelers by giving a suggestion list of possible places of interest where the tourists can go within a limited budget. Basically, the system will provide information needed by tourist such as accommodation, places of interest, transportation, travel and destination organizations. The system will be developed by using a System Development Life Cycle Model which a throwaway prototyping will be used in designing the system. The system will use Java 2 Micro Edition (J2ME) platform where it has been used in most of mobile phone available in the market. This paper reports on the researches that have been made for the development stages and the as well as the system architecture of the system. The report also included the final results of the findings as well as the recommendations that have been made for the future enhancement.

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TABLE OF CONTENTS

CERTIFICATION OF APPROVAL	ii
CERTIFICATION OF ORIGINALITY	iii
ABSTRACT	iv
ACKNOWLEDGMENT	v
LIST OF FIGURES	viii
LIST OF TABLES	ix
LIST OF ABBREVIATIONS	x
CHAPTER 1: INTRODUCTION	1
1.1 Background of Study	1
1.2 Problem Statement	3
1.3 Objectives of Study	5
1.4 Significant of Study	5
1.5 Scope of Study	6
CHAPTER 2: LITERATURE REVIEWS	7
2.1 Introduction	7
2.2 Tourism Industry, Backpackers, Internet and Mobile Phone	7
2.3 Mobile Tourist Guide / Directory Application	10
2.4 Mobile Application Using Java 2 Platform Micro Edition (J2ME).	14
2.5 Conclusion	16
CHAPTER 3: METHODOLOGY	18

3.1	Introduction	18
3.2	Software Development Model.	18
3.3	Gantt Chart / Key Milestone	20
3.4	Tools and Software	22
CHAPTER 4:	RESULT AND DISCUSSION.	25
4.1	Introduction	25
4.2	Proposed System	25
4.3	System Architecture	26
4.4	System Design and Development.	27
4.5	System Functionality Test	38
CHAPTER 5:	CONCLUSION AND RECOMMENDATION	40
5.1	Conclusion	40
5.2	Recommendations	41
REFERENCES	42

LIST OF FIGURES

Figure 2.1: Worldmate Application	11
Figure 2.2: Malaysia Mobile Guide 1.5.1	12
Figure 2.3: Figure 2.3: TrulyAsia.tv: Malaysia Travel Guide	13
Figure 2.4: Java technologies and their respective target devices (adapted . from Yuan MJ, 2004)	15
Figure 3.1: A Throwaway Prototyping-based Methodology	20
Figure 3.2: Gantt Chart	21
Figure 3.3: Interface of Java ME Platform SDK 3.0	23
Figure 3.4: The Architecture of RMS Database	24
Figure 4.1: System Architecture	26
Figure 4.2: User Input Mobile Interface	28
Figure 4.3: The user enters the inputs	29
Figure 4.4: List of suggested states	30
Figure 4.5: Information categories for Penang, the user chose “Introduction”	31
Figure 4.6: Brief descriptions about Penang.	31
Figure 4.7: Information categories for Penang, the user chose “Hotel”	32
Figure 4.8: List of hotels that available in Penang, user chose “1 st Island Stay”	33
Figure 4.9: Description of 1 st Island Stay in Penang	33
Figure 4.10: Information categories for Penang, the user chose “How to Go”	33
Figure 4.11: Type of transportation that available in Penang, user chose “Bus”	34
Figure 4.12: Description of bus transport in Penang	35
Figure 4.13: Information categories for Penang, the user chose “Place of Interest”	36
Figure 4.14: List of place of interest that available in Penang, user chose “Penang Butterfly Farm”.	37
Figure 4.15: Description of places of interest available in Penang	37

LIST OF TABLES

Table 2.1: The Statistic of Malaysia Tourist Arrivals and Receipts	8
Table 4.1: System Functionality Test	38

LIST OF ABBREVIATIONS

CAGR	Compound Annual Growth Rate
3G	Third Generation of development in wireless technology
Wi-Fi	Wireless Fidelity
POI	Points of Interest
WAP	Wireless Application Protocol
J2ME	Java 2 Micro Edition
H1N1	Influenza A
HSDPA	High-Speed Downlink Packet Access
UMTS	Universal Mobile Telecommunications System
J2SE	Java 2 Standard Edition
J2EE	Java 2 Enterprise Edition
CLDC	Connected Limited Device Configuration
XML	Extensible Markup Language
WML	Wireless Markup Language
XHTML	Extensible Hypertext Markup Language
RMS	Record Management System
SDLC	System Development Life Cycle
MIDP	Mobile Information Device Profile

CHAPTER 1

INTRODUCTION

1.1 Background of Study

Recently, mobile industries and mobile technology is one of the fastest growing industries [1]. According to Malaysian Communication and Multimedia Commission, statistics made in year 2007 shows that there is about 85.1% of Malaysians are using mobile phones. In terms of mobile penetration rate, Malaysia is in the third position, only behind Singapore and Thailand for ASEAN countries. However, by year 2009, there were 100.8% mobile phones per 100 Malaysia which there is an increase of 15.1% in the rate of mobile penetration.

The other industry, which is tourism, is one of Malaysia's largest and rapidly developing industries, where Malaysia is one of the most popular tourist destinations in the ASEAN region. Even though there is a slowdown in the global economic, in 2008, Malaysia received around 22 Million international tourists in 2008, an increase of around 5% over the previous year which is 2007. It is forecasted that international tourist arrivals in Malaysia will grow at a Compound Annual Growth Rate (CAGR) of around 9% during 2009-2012 and tourism receipts from overseas tourists are expected to rise at a CAGR of around 10% to RM 70 Billion in the same period. The Malaysian tourism industry will continue to grow rapidly in coming years resulted from the increasing promotional activities made by the government.

Usually, tourists or travelers are planning their vacation based on the information search via the Internet. Travel related websites has worked as a medium for tourists to seek information regarding tourism-related thing. With the existing mobile phone and other portable devices advancement as described earlier, tourism is one obvious application area [2]. The advancement of technology that created telecommunications network technology such as 3G and Wi-Fi also help to enable travelers to access an Internet connectivity in order to seek information about tourists attraction anywhere and anytime only via their handheld devices not only on pre-trip but also during-trip as well as after-trip. Each phase have different situation and different scenario. Thus, information providers need to understand what information are needed by tourists or travelers at each of these phases since there are some information that does not meet their expectations and needs [1].

This research is aims to design and develop a Mobile Travel Guide for Budget Travelers to assists tourists in tourism information seeking through mobile. Mobile Travel Guide for Budget Travelers will provide all the information about the tourists' possible destination based on the inputs insert by the user itself. The system is a database-enabled mobile tourist guide where user will get tourism related information such as the places of interest, transportation, accommodation and the most important thing is to provide a list of possible states in Malaysia where the user can go within the limited budget entered by the user. There will be brief information regarding the transportation, hotel accommodations, and places of interest for every state. The system will work just like a decision support system for the travelers since the system will give a suggestion list of possible states that the user can go with the limited amount of money that they have. With this kind of information, it will help the user to make the best decision where they want to go for a trip that is worth for them.

1.2 Problem Statement

Travelers especially backpackers are very anticipate in budget trips. They will be very considering on the available amount of budget required during a trip. This is because, these type of travelers usually preferred to go on a budget trip without doing much planning on where are the attractive places that they are heading to. Going for a vacation without a well planning incurred a lot of money. This is because we do not have much time to do a deep survey and this will results in a higher expenses during the vacation. Thus, planning well a trip and setting the limit budget for the trip will be the best options for people who love to travel spontaneously. In addition, Malaysia is one of the many countries in Asia which is considered as a primary tourist destinations and visitors havens. It is a country blessed with a lot of tourist destinations and the tourist especially backpackers in Malaysia do not have the idea on where to go with the limited amount of money that they have. It is impossible for them to visit every tourists' attraction during such a limited period and budget, thus they have to make a selection of what they believe to be most valuable Points of Interest (POI) (Wouter Souffriau, 2010). Thus, with the creation of the current system, it is hoped to help to cater the travelers' needs and wants during a vacation.

With the grown on Internet nowadays, it has been the means for tourists to seek information of the tourists' attraction by visiting travel-related websites. Besides that, tourists also gain information regarding the attractive places to be visited during the trip by buying any travel magazines or collecting printed tourists guides from any related travel agency or organization. However, tourism information from tourism websites not always meet the tourists expectation since most of these sources of information do not provided any information about the cost of the trip. This will be a difficult for tourists to go on a vacation within the limited or estimated budget set by them. In addition, mobile tourist applications are growing and developed rapidly nowadays which this is the new way for the developers in order to

help tourists seek information about the place of interest as well as manage their trip well with the help of the applications. However, most of the available applications only provide information about the accommodations, places of interest, route and navigations and do not guide the tourists in budgeting. Therefore, the current system is developed to help tourist getting information about the places of interest as well as managing their budget very well during the trip.

This project is aims to design and develop a mobile application that will meet the tourists need especially for the backpackers. Mobile Travel Guide for Budget Travelers will assist the tourists in information seeking and searching through mobile phone. This system will help tourist to access information about the tourists' attractions within the area chose by the user using mobile phone anywhere and anytime without depending on the continuous Internet connection. In contrast to I-mode or WAP-enabled applications that require continuous connection to the service provider's network, the system does not pose such requirement. That is, following its installation, the application is fully functional with no extra charge, even in places where the connection to mobile network is not feasible (Michael Kenteris, Damianos Gavalas, Daphne Economou, 2009). Most of the backpackers do not prefer to go online via their mobile device unless there is a free wireless connection around that area. This is because, users are charged for the wireless connection either by pay-per-minute or pay-per-packet billing policy applies [4] and this will increase the cost of users' trips. With this application, it is hoped to help the tourists to get related-tourism information and automatically helping them in planning their trip well-organize and within a budget.

1.3 Objectives of Study

The project develops a Mobile Travel Guide for Budget Travelers that will facilitate the needs of the tourists or travelers in Malaysia especially for the backpackers. The following objectives have been underlined to highlight the importance of this tourism guide:

- 1.3.1 To develop a mobile application and database that provide information of tourism and all related-tourism information that will facilitates the tourists to plan their trip very well.
- 1.3.2 To develop a budget mobile tourism application that will help the tourists to go on their preference vacation but still within the budget set by themselves.
- 1.3.3 To develop a mobile application guide the traveler to go on a trip that does not require any connection to the Internet for the users ease of access.

1.4 Significant Of Study

This study will provide many profits as below:

- 1.4.1 Facilitating the tourists with all kind of information that are related to tourists attraction without a limitation of time, place and device since this system will available for 24/7 by using mobile device that can be accessed anywhere and anytime.
- 1.4.2 To help tourists especially the backpackers to go on vacation with a trip planning as well as to stay within the budget so that they can save the money for other beneficial used.

1.5 Scope of Study

The following system will be used by all the travelers especially the backpackers in Malaysia who have mobile devices. Since this is a mobile application that needs to be installed inside a mobile device, no continuous Internet connection is needed during the information searching process. This system can be used by the users who love to travel a lot. The system includes a mobile application wherein, on a first stage, travelers who are going for a vacation or trip will insert the amount of budget that they are planning to spend, name of the current main city where they are at that time as well as the type of public transport that they are going to use in order to get there. The information about the number days of the user trips are also required to be inserted into this application. Once the user enters all those required inputs, there will be a list of possible states in Malaysia where the user can go with the budget inserted will be displayed on the screen. The user will then choose the state that interests them and the application automatically display the additional information related to the chosen state such as transportation, hotels accommodations as well as places of interest available in that state. The user can view the details of the place of interest and from that the user will decide where they want to go and visit during the trip occurred.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

The background of current study and brief description of the study were commenced in previous chapter. This chapter will continue the discussion and ideas in previous works about to tourism industries, backpackers, mobile technology, available mobile tourist application and Java 2 Micro Edition (J2ME).

2.2 Tourism Industry, Backpackers, Internet and Mobile Phone

2.2.1 Introduction

Tourism is an activity of great importance both economically and in terms of the pleasure it gives to holidaymakers worldwide. Nearly all individual all over the world take some sort of holidays away from home every year, although the number of days differs across and within different countries as refer to [2].

2.2.2 Tourism Industries and Backpackers

Tourism industry is one of the Malaysia's largest and rapidly developing industries, producing 10% of gross national product in 2002. According to the statistics produced by Department of Statistics of Malaysia, the number of tourists arrivals in Malaysia in 2009 is increased about 1.6 Million compared to the previous year,

2008. The total receipts received by the arrivals of the tourists in year 2009 are about 53.4 Billion. The statistic is shown in the Table 2.1 below. Even though the international traveler number drop around the globe due to the global crisis as well as the effect of Influenza A (H1N1), Malaysia itself still bucking the trend reporting an increase in the number of the international travelers arriving in the county in the first half of year 2009.

Table 2.1: The Statistic of Malaysia Tourist Arrivals and Receipts

YEAR	ARRIVALS	RECEIPTS (RM)
2009	23.6 Million	53.4 Billion
2008	22.0 Million	49.6 Billion
2007	20.9 Million	46.1 Billion
2006	17.45 Million	36.3 Billion
2005	16.4 Million	32.0 Billion
2004	15.7 Million	29.7 Billion
2003	10.5 Million	21.3 Billion
2002	13.2 Million	25.8 Billion
2001	12.7 Million	24.2 Billion
2000	10.2 Million	17.3 Billion
1999	7.9 Million	12.3 Billion
1998	5.5 Million	8.6 Billion

Despite the increase in the number of international travelers that arrive in Malaysia, there is also an increase in the number of independents travelers as well as backpackers in Malaysia. Backpackers are people with limited amount of money and anticipate in budget travel. They usually go travel on their own but sometimes the tour arranging is still commissioned to travel agencies. It implies that some of the travelers like to travel alone but cannot plan their own tours without the help of travel agencies as stated in [5]. Very often, for independents travelers and

backpackers, they conduct information search in their vacation planning process by visiting travel related websites.

2.2.3 Internet and Mobile Phone as Tourist Information Provider

The Internet has grown to be one of the most effective means for the travelers to seek information and purchase tourism-related products (Pan, 2003). Hence, tourism website play an indispensable role in people's traveling decision - making before their departure (Q. D Zhou, 2005). In addition, due to the advent of Web 2.0 technologies such as social networks, blogs and wiki's, tourists seek out information from other tourists who have already been to a destination and have published information for others to read. Besides tourism websites which provide tourism information, there are numerous websites on hand which offer this sort of personal information space to tourist such as tourist blogs, tourist diary notes as well as communication technology to connect with family and friends also with other tourists while abroad travelling [25]. However, the information gain from the tourism related websites sometimes do not meet the needs and wants of the travelers. Sometimes the information is not updated and this will cause difficulties to the travelers to go to a trip.

Usually, information seeking and searching process occur on pre-trip and during-trip phases in a tourist life cycle as stated in [1]. The travel information searches need to navigate through the travel information space on the Internet in order to obtain relevant information [6]. Werthner divided tourist life cycle into three phases, there are pre-trip, during-trip and after-trip. Each phase have different situation and different scenario. Thus, the information provider needs to understand what is the information needed by the tourists at each of the three phases.

In parallel, the mobile phone transcends from a traditional voice communication device to an instrument facilitating interaction with web services [26]. In recent years, mobile technology and mobile industries is one of the fastest growing penetration rates of mobile usage in Malaysia. Everyone is using a mobile phone for the easiness of their life. In addition, most of today's mobile phone supports both telecommunication network technology such as HSDPA, UMTS and 3G as well as wireless local network technology [1]. Wi-Fi and 3G network covers most areas within Peninsular Malaysia enabling tourists to access the Internet connectivity anywhere and anytime. Wireless access through mobile devices adds to the Internet connection the element of 'portability' has caused the mobile phone to become another medium for tourists in seeking information about the trips and tours. This is why an efficient mobile tourism guide is going to be developed and it is hoped to help the travelers to gain up-to-date information to go for a vacation but at the same time they can save their money since they have set a limit budget for their trip before.

2.3 Mobile Tourist Guide / Directory Application

Recently, with the fastest growing of mobile technology and mobile industries together with the advancement of the telecommunication networks such as 3G and Wireless, many organizations have taken the opportunity to develop mobile application that will facilitates all the needs and wants of the travelers whenever they are going for a vacation.

One of the mobile applications that provide guidance for tourists is Worldmate. See Figure 2.2 below for Worldmate Application. This application will help tourists to manage the itinerary, organize meetings, and share travel plans, weather forecasted as well as book the hotel. This kind of application will help tourists a lot while they are going for a vacation. However, the drawback of this application is, it is only available for those who are using mobile with Android platform. Not everyone can

afford to buy mobile phone that comes with Android platform since this type of mobile device will cause us a higher price. Besides that, this application does not include what are the special places or tourists attractions located in Malaysia since we live in Malaysia. Thus, with the design of the system, it is hoped to help travelers especially backpackers in Malaysia to go for a trip easily but at the same time control their spending of money during the vacation.

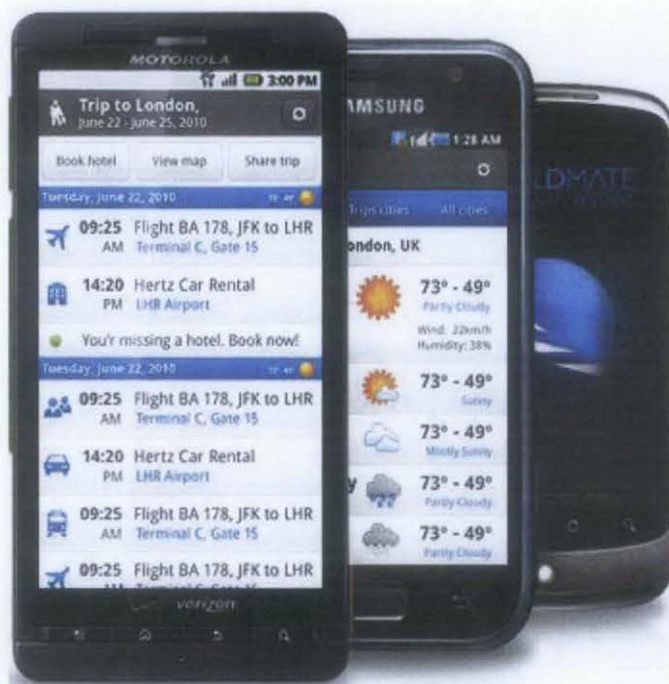


Figure 2.1: Worldmate Application

The other example of mobile guide application is Malaysia Mobile Guide 1.5.1 that is shown in the Figure 2.3 below.

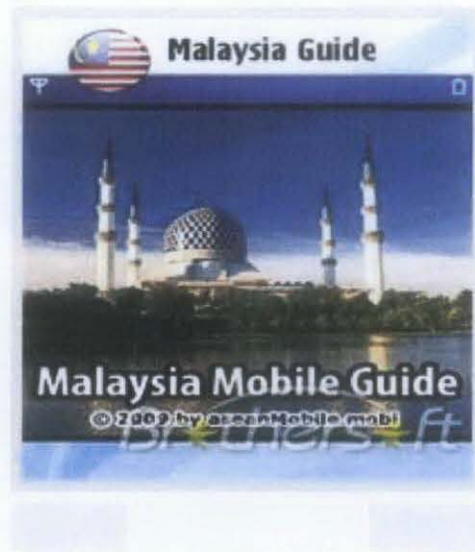


Figure 2.2: Malaysia Mobile Guide 1.5.1

This is an application published by aseanMobile.mobi where it give only give explanations on how Malaysia climate is, certain destinations in Malaysia such as Cyberjaya and Pulau Tioman, food and dining in Malaysia and also people and cultural. However, this application does not show all the places of the interest that are available in that state. The information also is not updated which can cause a difficult for the user when he/she is using it. Compared to the Mobile Travel Guide for Budget Travelers, this application does not give an emphasis on the budget or cost of the trips since it only provides a description of Malaysia as well as the POIs in Malaysia.

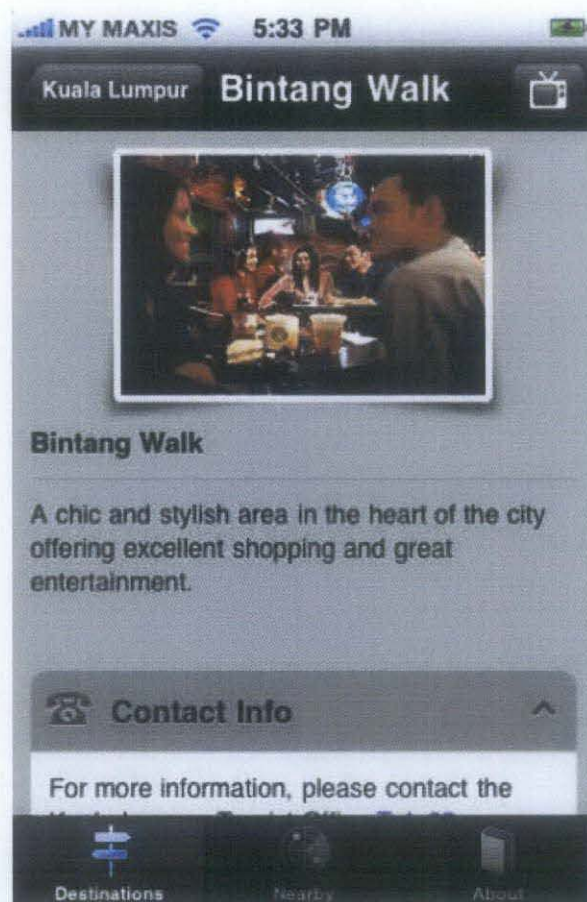


Figure 2.3: TrulyAsia.tv: Malaysia Travel Guide

Another example of mobile directory application is TrulyAsia.tv: Malaysia Travel Guide. The application (Figure 2.4) offers a mobile travel guide that focusing on Malaysia. It provides information of point of interests located in Malaysia and several travel documentaries with rich multimedia content including photos, audio and videos. It is published by I-Pixel that provides information regarding the attractions in Malaysia, food, shopping mall, hotel, events and home stay. Even though the application has the update features where it will be updated regularly to include new attractions and point of interest, this application is only applicable for a smart phone called iPhone where not everybody is affordable to use this kind of mobile phone. Thus, with the development of Mobile Travel Guide for Budget

Travelers application, it is hope to assist more tourists since most of people are using phones with Java platform such as Nokia, Sony Ericsson and many more.

2.4 Mobile Application Using Java 2 Platform Micro Edition (J2ME)

The need for defining a computing platform that could execute Java applications and be supported by small electronic and embedded devices led to the development of J2ME by Sun Microsystems in 1999. J2ME is the newest and smallest addition to the Java family. It is the smaller brother to J2SE (Standard Edition) and the server-based J2EE (Enterprise Edition) [8]. It is a framework for developing applications executed on resource-constrained devices. However, it also offers strong wireless networking support and enables programming applications to access a broad range of web content formats, thus J2ME may also be considered as an alternative to WAP and I-mode, wireless Internet technology [4].

Java 2 Micro Edition follows a modular design which aims at simplifying the support for a broad range of small devices. Thus, it introduced the concept of configuration and profile like Figure 2.4 below. J2ME configurations define the minimum features of Java Virtual Machine and a minimum set of libraries for a “horizontal” family of devices such as devices with similar processing and memory limitations, user interface requirements and connection capabilities. The configuration currently supported by all J2ME-enabled mobile devices is the connected limited device configuration (CLDC).

Profiles are implemented on the top of configurations. A configuration is the base for one or more profiles. Typically, a profile includes libraries specialized in the unique characteristics of a particular class of devices. Java applications are built on the top of a particular configuration/profile pair and based on their specified class libraries.

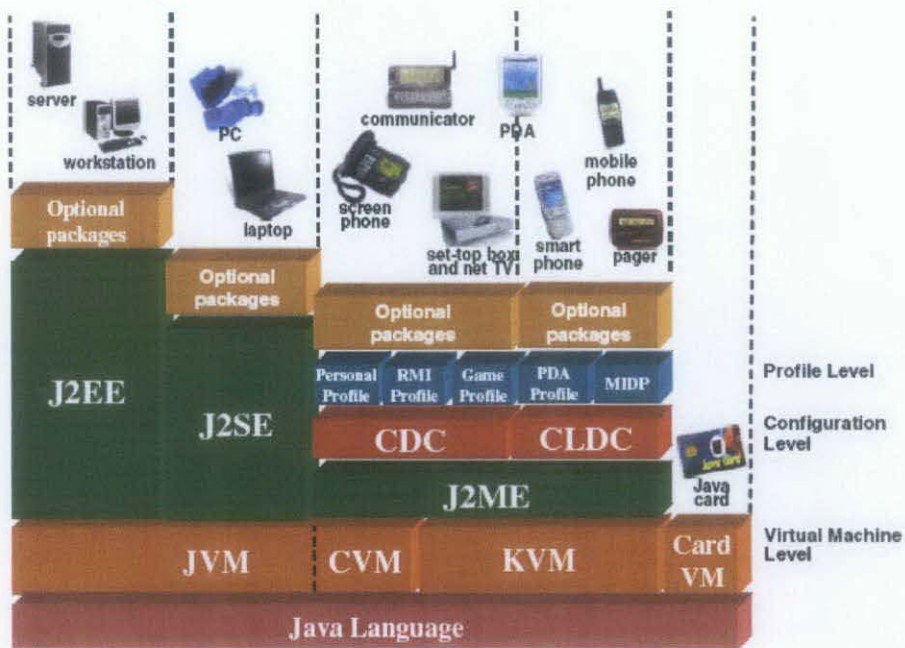


Figure 2.4: Java technologies and their respective target devices (adapted from Yuan MJ, 2004)

According to Kenteris, Gavalas and Economou (2009), J2ME platform presents many advantages that indicate its suitability for developing mobile travelers guide application:

- It inherits the main assets of Java language: the capacity to develop powerful applications and platform independence. In addition, apart from simply browsing content for an example in the case of WAP or I-mode, the user can download over the air full-fledged applications based on the extensive subset of Java programming language rather than on a markup language.
- J2ME application can practically download and parse content of any format such as text, XML, WML, XHTML, serialized Java object and many more. Of course, the presentation of content authored in a markup language requires the use of specialized parsers.
- J2ME enables disconnected access and synchronization. Java-based mobile application is disconnected or out of the network coverage are. The user can

run and interact with the applications in standalone mode, and later synchronize with the back end infrastructure. This is contrast with WAP and I-mode that require constant connection with the mobile network (Gupta and Srivastava, 2001).

- Provide rich UI with more flexibility; allow storing of the data using Record Management System (RMS) is the others advantages of using J2ME in designing mobile application.

On the other hand, several weaknesses of J2ME technology should be carefully considered. First, J2ME applications have increased requirement on devices' resources, there are storage, processing power and memory. The download of new J2ME applications which is jar files is also costly, slow and consumers network resources. With respect to the disadvantages, it is evident that J2ME-based mobile traveler guide application should-ideally be downloaded only one.

2.5 Conclusion

The use of mobile phones has definitely got a place in today's society. This research embarks on the realization that an individual tourist such as backpackers always prefer to go for a budget trips. They love to travel but with the limited amount of money, they have a restricted idea on where they can go to visit. Besides, they also prefer to go travel without any much plan. This will lead to increase in the money spending since they do not plan their trip very well. Besides that, the information provided by travel related websites are sometimes does not satisfy the travelers' needs and wants. It is very timely that we develop the Mobile Travel Guide for Budget Travelers for those who are love to travel but at the same time focus on saving their money by set a budget for the trip. In this point, Mobile Travel Guide for Budget Travelers allows people to get information regarding tourism from anywhere and anytime. Since this is a stand-alone mobile application, any Internet connection such as Wireless Application Protocol (WAP) or I-mode is not required

during the information seeking or searching. With the simple, compact and small traveler information directory in Mobile Travel Guide for Budget Travelers, it will facilitate travelers or users to access tourism information more especially Malaysia. This is also hoped to help the travelers to know very well about Malaysia by having a list of interesting places available in Malaysia.

CHAPTER 3

METHODOLOGY

3.1 Introduction

This chapter involves the research methodology which is adapted to current system. This chapter will describe in details on what are the chosen methodology that will be used in developing the current system.

3.2 Software Development Model

The System Development Life Cycle (SDLC) is adopted in order to develop the current system. According to [28], SDLC is the process of understanding how an information system (IS) can support business needs, designing the system, building it and delivering it to the users. SDLC adheres to important phases that are essential for developers which are planning, analysis, design and implementation.

There are various types of SDLC methodologies have been developed to guide the processes involved in developing a project including the waterfall model, rapid application development (RAD), joint application development (JAD), throwaway prototyping, the fountain model and also the spiral model.

In developing this current system, throwaway prototyping is adopted. Throwaway prototyping methodology is similar to prototyping methodology in that they include the development of prototypes. The reason why throwaway prototyping is adopted is because this type of prototyping can significantly reduce risk. This is because; this prototyping has a relatively thorough analysis phase that is used to gather information and to develop ideas for the system concept. Many of the features suggested by the user that may not be well understood will be issues to be examined by analyzing, designing and building a design prototype. Several design prototypes may be used during the analysis and design phases. Each of the prototypes is used to minimize the risk associated with the system phase by confirming that important issues are understood before the real system is built. This is one of the reasons why the throwaway prototyping is adopted.

In addition, the project development process can be done quickly by using this throwaway prototyping. Cost and time saving will be achieved in the process of product development. If mistakes can be identified before commitment are made to expensive tooling, thus the costs associated with modifying such tools can be avoided. The other thing is, once the users can get quick feedback on their requirements, they may be able to refine them early in the development of the software. Speed is crucial in developing this project since only a limited time is given for us to finish this project. Figure below shows the throwaway prototyping methodology.

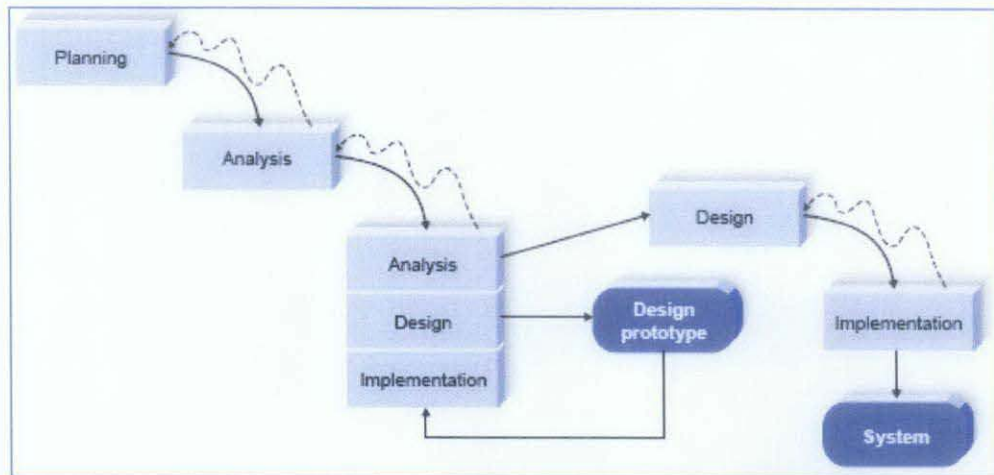


Figure 3.1: A Throwaway Prototyping-based Methodology

Throwaway Prototyping-based Methodology contains the major steps of prototype developing starting from planning, analysis and design as well implementation before the system is finally developed.

3.3 Gantt Chart

Below shows the Gantt Chart or Key Milestone for the system.

NO	DETAIL / WEEK	1	2	3	4	5	6	7		8	9	10	11	12	13	14	15	
1.	Project Work Continues								MID SEMESTER BREAK									
	Gather information																	
	Develop the system																	
2.	Submission of Progress Report																	
3.	Project Work Continues																	
	Do some changes with the system																	
4.	Pre-EDX																	
5.	Submission of Dissertation (Soft Bound)																	
6.	Project Work Continues																	
	Get the final results and findings																	
7.	Viva / Oral Presentation																	
8.	Submission of Technical Report																	
9.	Submission of Dissertation (Hard Bound)																	

Figure 3.2 : Gantt Chart

3.4 Tools and Software

In developing this current system, Java 2 Platform Micro Edition (J2ME) will be used as a platform to design the system. This platform generally produces portable application that can be run on most phones. Another tool or software that will be used to design this mobile application is Record Management System (RMS) that works as a database for my mobile application. Below are details explanations about the tools and software that will be used in designing the current system.

3.4.1. Java Platform Micro Edition Software Development Kit 3.0 for Windows (Java™ ME Platform SDK 3.0)

Java Platform, Micro Edition (Java ME) provides a robust and flexible environment for applications running on small and constrained devices such as mobile phones, personal digital assistants (PDAs) and others. This platform has been chose because a mobile phone with Java platform is currently being used by me and it will be easy for me to test the current system in it.

Java ME Platform SDK is a toolbox for developing mobile applications. It provides device emulation, a standalone development environment and a set of utilities for rapid development of Java ME applications. The figure below shows the interface of Java ME Platform SDK 3.0.

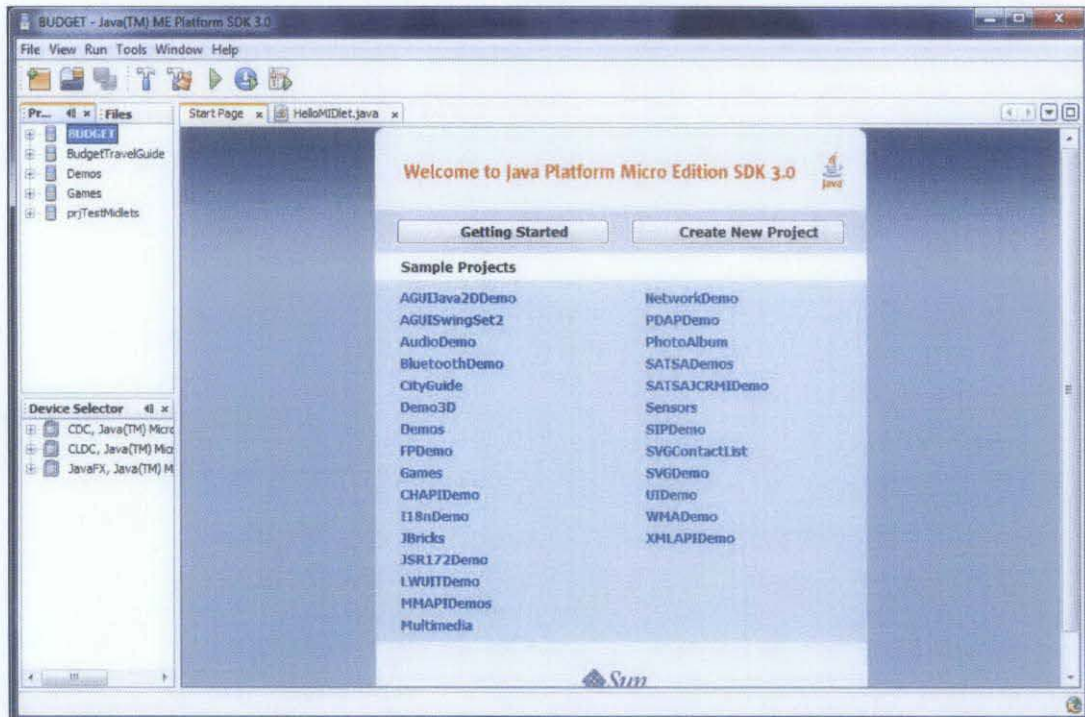


Figure 3.3 Interface of Java ME Platform SDK 3.0.

3.4.2. Record Management System (RMS)

Record Management System (RMS) is a simple record-based persistent storage mechanism provided by Mobile Information Device Profile (MIDP). It allows the MIDlet application to store persistent data within a controlled environment, while maintaining system security. It also provides a simple, non-volatile data storage for MIDlets while they are not running or closed.

Information about the transportation fees, hotels rates as well as place of interest entrance fees need to be stored in a database before the system can read the specific records and process them to provide a list of possible places of interest that can be visit by the tourists based on the input inserted. Thus, in order to develop this current system, RMS will be used as storage to store the entire required database. RMS manages persistent

data through Record Stores. Each Record Stores has Record Header and a collection of Records. The figure below gives an idea of the RMS database architecture.

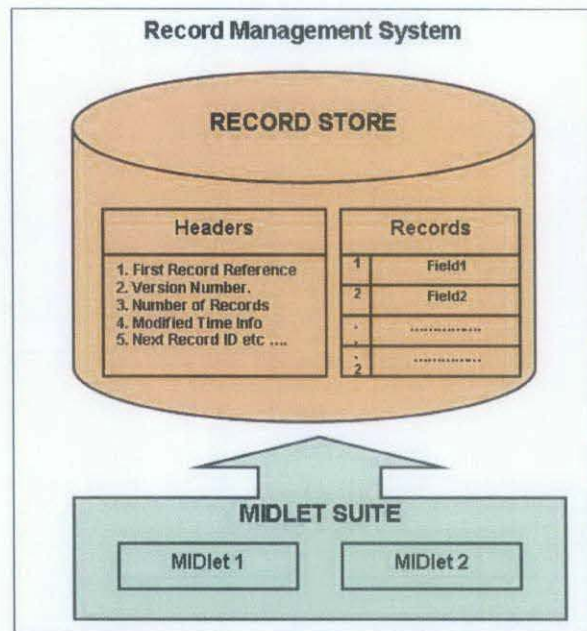


Figure 3.4: The Architecture of RMS database

CHAPTER 4

RESULT AND DISCUSSION

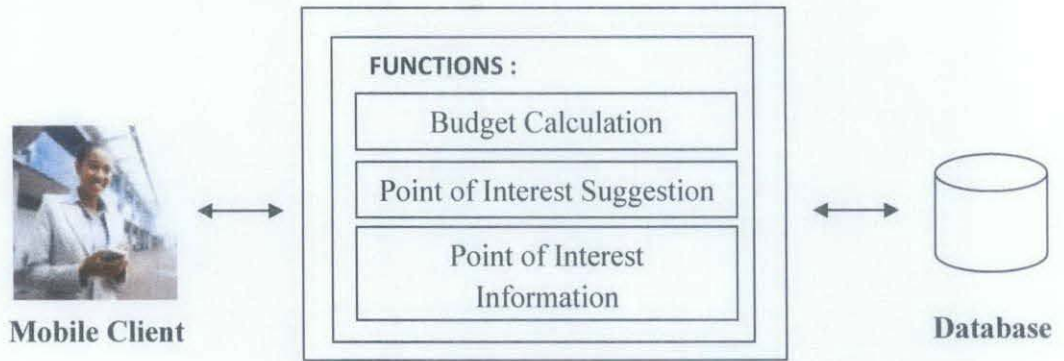
4.1 Introduction

This chapter discusses about the system architecture of the current system and reviews all the finding of this study. This chapter also includes the development phase or process involve in developing this Mobile Travel Guide for Budget Travelers system.

4.2 Proposed System

The proposed system in this study is to design and develop a Mobile Travel Guide for Budget Travelers for backpackers in Malaysia. This prototype is going to help the travelers especially the backpackers who anticipate in budget travel by providing an information about the places where they can visit with a limited amount of budget set by the user themselves.

4.3 System Architecture



Mobile Travel Guide for Budget Travelers

Figure 4.1: System Architecture

Figure 4.1 shows the system architecture of the Mobile Travel Guide for Budget Travelers. First of all, the user which is the client needs to enter inputs into the systems which are:

- The amount of the budget that the user set to be used during the trip
- The main city where the user located is at that time
- The number days of trip
- The type of transportation that the user wishes to use either bus, train or airplane

The user needs to enter these types of data because the system will calculate the estimation expenses that might be used by the user in a certain state. For an example, the user is located in Ipoh, Perak. She entered the amount of budget which is RM 250. After the user entered all those inputs, the system will list out all the possible states with its places of interest that can be visited within the amount of

budget entered by the user. The user can view the description of the place of interest and mark it as one of his/her destination.

The system will connect to the database to read the available information and process the information to provide a list of possible places of interest as output to the client or user.

The outputs of the system will be:

- A list of the possible states that can be visited by the user.
- A list of places of interest with its place of interest that located in that state.

4.4 System Design and Development

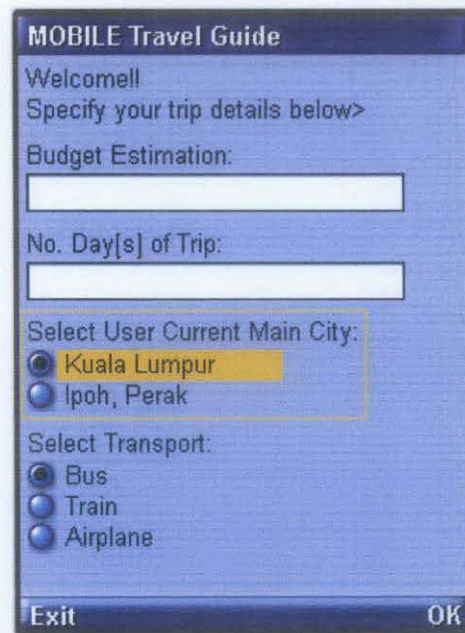
System design is the activity of proceeding from an identified set of requirements for a system to a design that meets those requirements (Daintith, 2009). The current system requires the developer to involve in three major phase where they are:

4.4.1. Retrieving user input: Budget estimation amount, user current main city, number of days of trips and type of transportation.

Basically, this phase requires the user to enter all the required information so that the data reading phase can be run in order to create a list of possible places that can be visited by the users within the estimated amount of budget. This phase has been developed using Java ME Platform SDK 3.0 and the figure below is the output of this phase where it has been produced by the emulator itself based on the coding that has been programmed by the author.

The home screen in Mobile Travel Guide for Budget Travelers prototype displayed the input requested from the user by the system. There are

textboxes for budget estimation, number of days of trip, radio button for user's current main city (Ipoh, Perak or Kuala Lumpur) as well as the type of transportation the user is planning to take in order to get to their destination (Bus, Train or Airplane), as shown in Figure 4.2.



The screenshot shows a mobile application window titled "MOBILE Travel Guide". The interface is blue and contains the following elements:

- Greeting: "Welcomell" (sic)
- Instruction: "Specify your trip details below>"
- Form fields:
 - "Budget Estimation:" followed by a white text input box.
 - "No. Day[s] of Trip:" followed by a white text input box.
- Radio button group for "Select User Current Main City:" with two options:
 - Kuala Lumpur (highlighted with a yellow background)
 - Ipoh, Perak
- Radio button group for "Select Transport:" with three options:
 - Bus
 - Train
 - Airplane
- Navigation buttons at the bottom: "Exit" on the left and "OK" on the right.

Figure 4.2: User input mobile interface.

4.4.2. Processing all the available data and creating a list of possible place that can be visited by the user within the budget set by the user himself.

Tripadvisor.com is one of the website that provides the information about all the place of interest as well as accommodations that are available there. This website has been one of the medium for the author to seek information in order to develop this system. The other website that helps the author in getting information about the transportation fair is AirAsia.com.my as well as ktmb.com.my. All the related information will then be stored into Record Management System (RMS) where it allows the MIDlet application to store data as well maintain the system security.

Once the user have entered all the required inputs (Figure 4.3), the system will then display a list of possible states where the user can visit based on the input. The list of possible states are created based on all the data that system have which are rate of hotel accommodation available in those states, transportation fare as well the entrance fee for every place of interest located in the selected state. The list of possible states is displayed by the system as below (Figure 4.4).

As an example, the user has about RM100 for the budget of his trip, he wants to go for only one day of trip where the user is from Ipoh, Perak and he chooses to go by bus, once he enters all the inputs, the system will be displayed as shown in Figure 4.3. After inserting all the required input, the user needs to click on the “OK” button to go to the next screen. Once the user click on “OK” button, the system will display a list of suggested state where the user can go based on the user’s input, as shown in Figure 4.4 below.

The screenshot shows a mobile application interface titled "MOBILE Travel Guide". The screen displays a "Welcome!!" message and a prompt to "Specify your trip details below>". There are four input sections: "Budget Estimation:" with a text box containing "100"; "No. Day[s] of Trip:" with a text box containing "1"; "Select User Current Main City:" with two radio button options, "Kuala Lumpur" and "Ipoh, Perak", where "Ipoh, Perak" is selected; and "Select Transport:" with three radio button options, "Bus", "Train", and "Airplane", where "Bus" is selected and highlighted with a yellow background. At the bottom of the screen, there are two buttons: "Exit" on the left and "OK" on the right.

Figure 4.3: The user enters the input

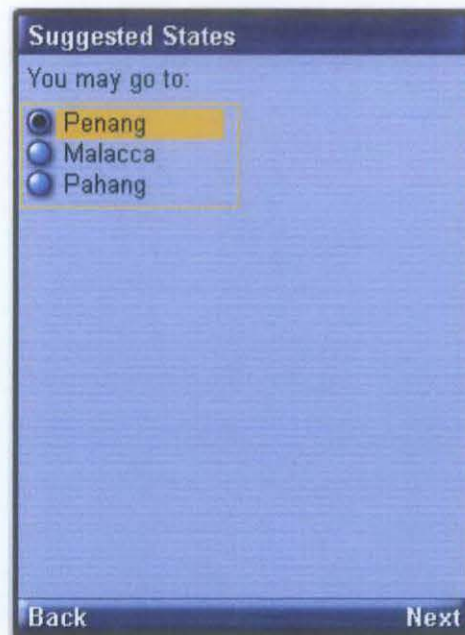


Figure 4.4: List of suggested states

4.4.3. Providing a description about the place of interest to the user.

In Figure 4.4, the system displayed a list of possible states where the user can visit based on the input inserted by the user as shown in Figure 4.3. Refer to Figure 4.4, if the user chooses Penang as her/his destination trip, the user needs to select the “Enter” key before the system displays a list of information categories for the user to select in order to view a brief description about Penang (Refer to Figure 4.5). The list includes Introduction, Hotel, How to Go and place of interest that located in Penang.

The Introduction describes about Penang by giving a brief introduction to the user about Penang. If the user chooses “Introduction” radio button as shown in Figure 4.5, there will be a description about Penang displayed on the screen (Refer to Figure 4.6).

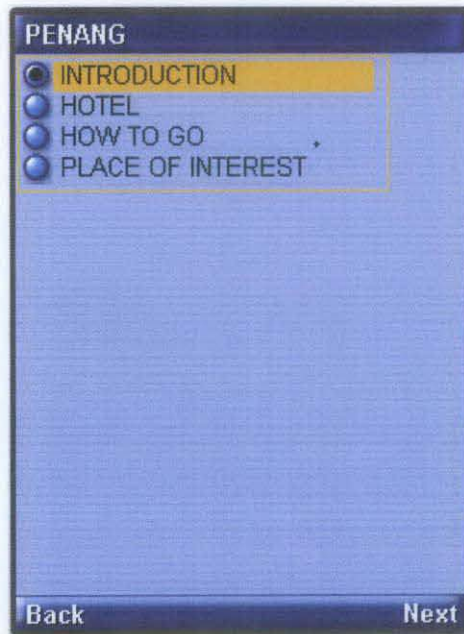


Figure 4.5 Information categories for Penang, the user chose "Introduction"

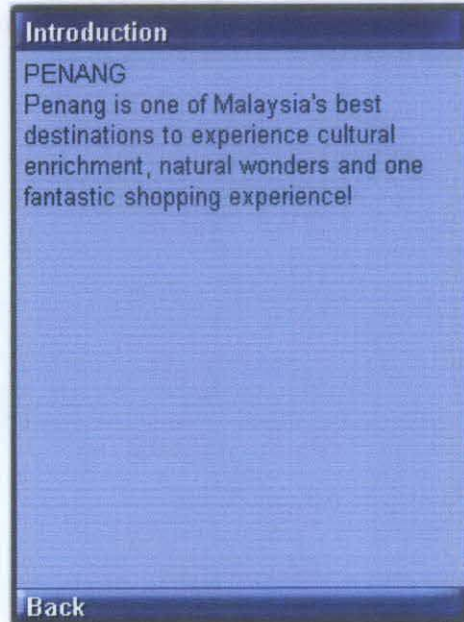


Figure 4.6 Brief descriptions about Penang

If the user chooses “Back” button (Figure 4.6), the system will go back to the list of information categories for Penang. If the user wants to view what are the low budget hotels that available in Penang, the user needs to click on “Hotel” radio button. There will be a screen displayed what are the possible hotels that are available in Penang as shown in Figure 4.7. If the user chooses to click on 1st Island Stay and click on “Next” button (Refer to Figure 4.8), there will be a description about the hotels together with its address, phone number as well as the websites of the hotel itself for user’s further information, as shown in Figure 4.9

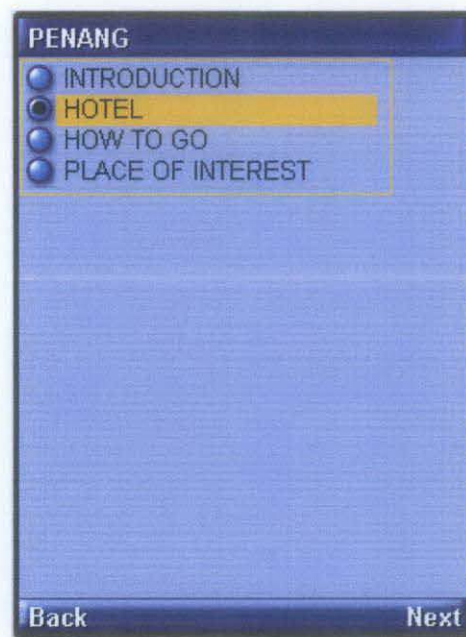


Figure 4.7 Information categories for Penang, the user chose “Hotel”



Figure 4.8 List of hotels that available in Penang, user chose “1st Island Stay”



Figure 4.9 Description of 1st Island Stay in Penang

“How to go” menu will describe what are the possible type of transport the user can take in order to go to the chosen state, as in the example is Penang. There are three types of transportation which are bus, train and air (Figure 4.11). If the user chose “Bus” as shown in Figure 4.11, there will be a description of the transportation together with the fare of transport, as shown in Figure 4.12.

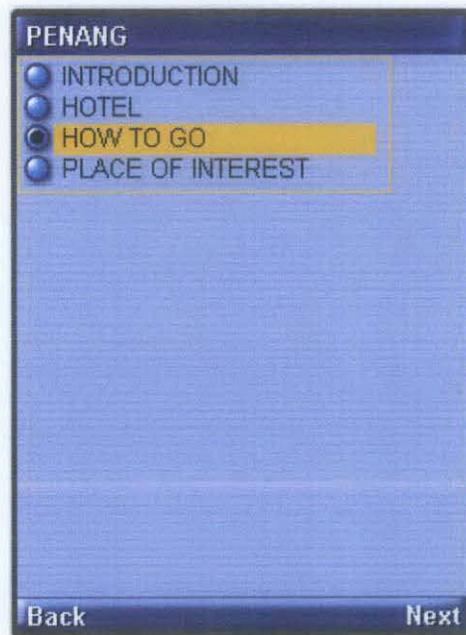


Figure 4.10 Information categories for Penang, the user chose “How to Go”

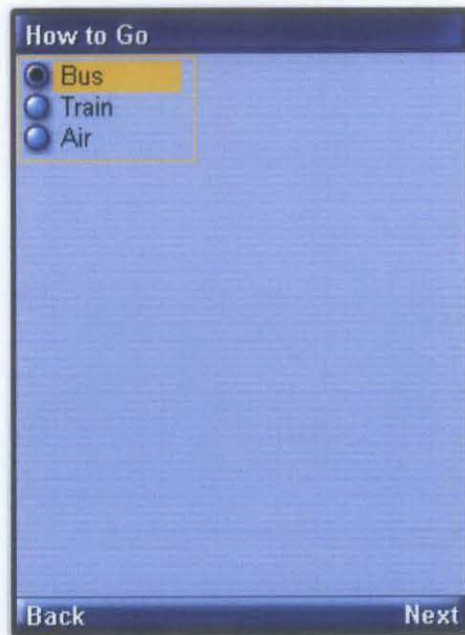


Figure 4.11 Type of transportation that available in Penang, user chose "Bus"

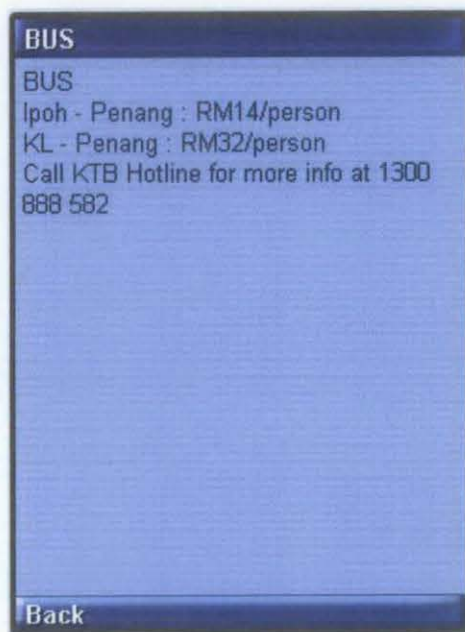


Figure 4.12 Description of bus transport in Penang

“Place of Interest” menu will first give a list of places of interest that available and can be visited by the users once they are at Penang (Figure 4.13). The user needs to choose one of the place of interest (Refer to Figure 4.14) before the system is going to display the details description about the chosen place of interest (Figure 4.15). The example shown that the user chose “Penang Butterfly Farm” before the system is going to display the details information about the place of interest (Figure 4.18).

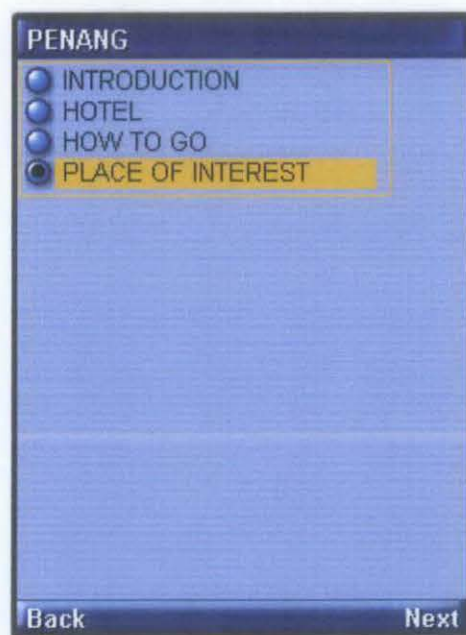


Figure 4.13 Information categories for Penang, the user chose “Place of Interest”

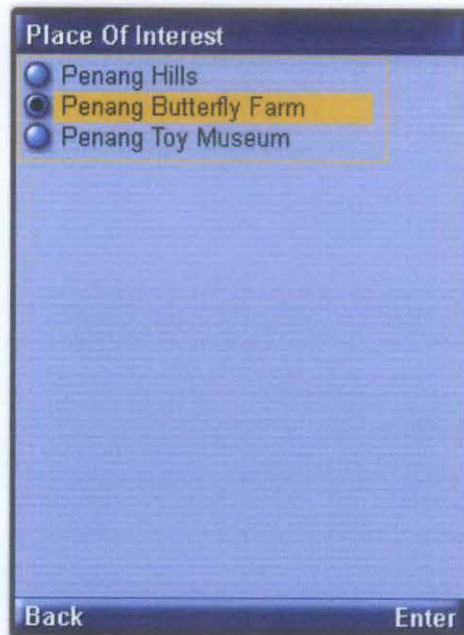


Figure 4.14 List of place of interest that available in Penang, user chose "Penang Butterfly Farm"

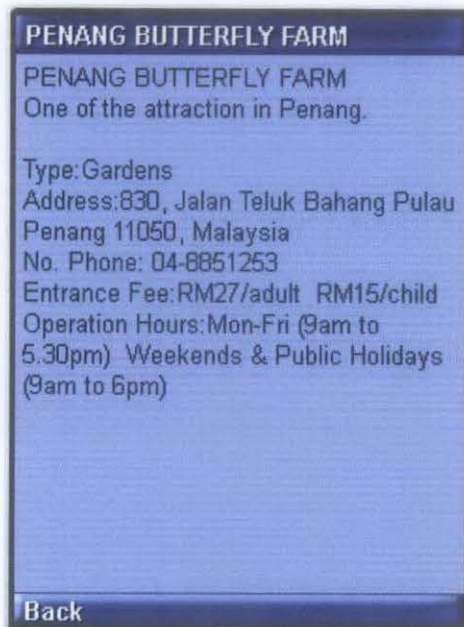


Figure 4.15 Description of places of interest available in Penang

Once the user have finished viewing the information about the states, they can choose either they are going or not. The system, Mobile Travel Guide for Budget Travelers will act like a decision in making prototype which it will help the foreigner by guiding them in choosing what the possible places available in Malaysia are. Thus, the system is developed in order to help the tourists to go whenever they want without facing any problem regarding money.

4.5 System Functionality Test

In order to evaluate the proposed system, a functionality test of Mobile Travel Guide for Budget Travelers has been developed. The table below shows the functionality aspect that have been tested, the input details, expected result as well as the actual result of the test.

Table 4.1 System Functionality Test

CASE	FUNCTIONALITY BEING TESTED	INPUT DETAILS	EXPECTED RESULT	ACTUAL RESULT
1	View List of Suggested State	Ok Button, Radio Button	List of Suggested State is displayed	Successfully
2	View List of State Information Categories : <ul style="list-style-type: none"> • Introduction • Hotel • How to Go • Place of Interest 	Next Button, Radio Button	List of State Information Categories is displayed	Successfully
3	Introduction Category – View description of the	Next Button,	Description of the state is	Successfully

	state	Radio Button	displayed	
4	Hotel Category – View a list of available hotel and description	Next Button, Radio Button	A list of available hotel and description is displayed	Successfully
5	How to Go Category – View a list of available transportation and description	Next Button, Radio Button	A list of available transportation and description is displayed	Successfully
6	Place of Interest Category – View a list of available place of interest and description	Next Button, Radio Button	A list of available place of interest and description is displayed	Successfully

CHAPTER 5

CONCLUSION AND RECOMMENDATION

5.1 Conclusion

This paper contributes to the understanding the travelers or tourists expectations and needs whenever they are going for a vacation. This paper also help in discussing what are the problem statement, related issues as well as the methodology used to develop this system.

Mobile Travel Guide for Budget Travelers was developed to help assisting the travelers especially for backpackers or those who love to go for a spontaneous vacation. This is because, by using this application, the travelers can plan their trip very well and go to all interesting places that are available in Malaysia but at the same time, the travelers can ensure that they still have enough money to be expensed during the trip since the application will alert the user either the planned vacation is under the set budget or over the budget. This will be useful for those who love to go for a spontaneous vacation since this kind of vacation will incur a lot of money without our realization. Thus, it is hoped that with the existing of this application will help to assist the travelers inside the Malaysia who love to go for a vacation but in the same time ensuring the vacation is always end up within the budget.

5.2 Recommendations

However, there are still many aspects and areas of the system that can be improved to a greater extent. Here are some of the aspects that could be developed in the future would be recommended. These recommendations would greatly help the tourist to get clear tourism information in the future.

- Improving on the User Interface where the current system is using a usual interface in order to attract the user to use the system.
- Provide a GPS system in order to locate the current user's location and guiding the user to go to the POIs by providing the route.

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